Burnout Research 1 (2014) 3–11

Burnout Research

journal homepage: www.elsevier.com/locate/burn

Loss and gain cycles? A longitudinal study about burnout, engagement and self-efficacy

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ARTICLE INFO

Article history:
Received 31 July 2013
Received in revised form 17 January 2014
Accepted 3 February 2014

Keywords:
Obstacles
Facilitators
Burnout
Engagement
Self-efficacy

ABSTRACT

The present longitudinal study (two waves), conducted on a population of 274 secondary-school teachers, expands on previous research on burnout and work engagement. Accordingly, the effect of organizational factors (obstacles, facilitators) as well as personal resources (self-efficacy) on burnout and engagement is tested longitudinally following the Social Cognitive Theory. More specifically, we test the loss and gain cycles, and reciprocal relationships concerning burnout, engagement, and self-efficacy over time. Four questions are addressed: (1) Are obstacles positively related to burnout and work self-efficacy over time? (2) Are facilitators positively related to engagement and self-efficacy over time? (3) Is work self-efficacy negatively related to burnout and obstacles over time? and (4) Is work self-efficacy positively related to engagement and facilitators over time? The results of a hard-copy survey carried out at two waves (8 months between the two times), which were computed on Structural Equation Modeling show that obstacles are positively related to burnout, which in turn is positively related to self-efficacy over time. Likewise, facilitators are positively related to engagement and self-efficacy, which in turn is positively related to facilitators over time. These findings suggest a positive gain cycle in which self-efficacy plays a central role.

Teaching is an essential job in our society but it is also a high-stress occupation. Studies on burnout in this teaching context showed that teachers could feel anxious and frustrated, and may even suffer from burnout (see (Salanova, Llorens, Martínez, & Cifre, 2012a)). Although the concept of burnout has recently been extended to all professions and occupational groups, its original definition was a syndrome of emotional exhaustion, depersonalization, and reduced personal accomplishment that can occur among professionals who deal directly with recipients such as students, pupils, clients or patients (Schaufeli, Leiter, & Maslach, 2009).

The persistence and the dimensions of burnout regardless of the profession have been evidenced by research (e.g., (Schaufeli & Enzmann, 1998; Schaufeli, Maassen, Bakker, & Sixma, 2011)). Specifically, burnout is defined as a "persistent, negative, work-related state of mind in 'normal' individuals that is characterized mainly by exhaustion and accompanied by distress, a sense of reduced competence, decreased motivation, and the development of dysfunctional attitudes at work" ((Schaufeli & Enzmann, 1998), pp. 36). Recent research has shown that burnout is composed of the so-called "core dimensions", that is, exhaustion and cynicism (e.g., (Green, Walkey, & Taylor, 1991; Leiter, 1993; Llorens, García, & Salanova, 2005; Salanova, Peiró, & Schaufeli, 2002)). *Exhaustion* refers to feelings of strain, particularly chronic fatigue resulting from overtaxing work, whereas *cynicism* refers to an indifferent or detached attitude toward students, parents, and one's work, losing interest in one's work, and feeling that one's work has lost its meaning (Maslach, Schaufeli, & Leiter, 2001).

One further step in the study of burnout has been the development of what is theoretically its opposite, i.e., engagement (Demerouti, Mostert, & Bakker, 2010; Schaufeli & Salanova, 2011). Specifically in the teaching context, research has shown that teachers may also experience engagement at work, especially when they have enough resources to cope with high job demands (Bakker, Hakanen, Demerouti, & Xanthopoulou, 2007). Work engagement has been defined as a "*positive, fulfilling, work-related state of mind that is characterized by vigor, dedication, and absorption in the activity*" ((Schaufeli, Salanova, González-Romá, & Bakker, 2002), p. 72). Similarly to the case of burnout research, it has been shown that engagement is composed of the so-called "core dimensions", that is, vigor and dedication (Llorens, Schaufeli, Bakker, & Salanova, 2007). *Vigor* refers to the willingness to invest effort in one's work,

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http://dx.doi.org/10.1016/j.burn.2014.02.001

persistence in the face of difficulties, and high levels of energy and mental resilience while working, whereas *dedication* indicates a particularly strong work involvement and identification with one's job.

Different scholars have shown that burnout and engagement experienced at work result from the combination of two sets of working conditions, i.e., job demands, and the job resources available to cope with these demands following two underlying psychological processes: the energy-draining and the motivation processes, respectively (e.g., (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001)). The first begin with chronic job demands, which in turn may deplete employees' energy resources and may thus lead to burnout. This level of burnout could also produce a deterioration of health (Hakanen, Schaufeli, & Ahola, 2008), musculoskeletal complaints (Jaworek, Marek, Karwowski, Andrzejczak, & Genaidy, 2010), a reduction in affective commitment (Llorens, Bakker, Schaufeli, & Salanova, 2006), and chronic work disability (Ahola, Toppinen-Tanner, Huuhtanen, Koskinen, & Väänänen, 2009). Second, the motivational process begins with the availability of job resources that stimulate the employee's motivation (Hackman & Oldham, 1980) in the form of work engagement and positive work outcomes, such as life satisfaction (Hakanen & Schaufeli, 2012), organizational commitment (Llorens et al., 2006), autonomy, positive affect and efficacy beliefs in positive spirals (Llorens et al., 2007; Salanova, Llorens, & Schaufeli, 2011), employee and group performance (Salanova, Llorens, Cifre, & Martínez, 2012b; Torrente, Salanova, Llorens, & Schaufeli, 2012), and service quality (Hernández-Vargas, Llorens, & Rodríguez, 2014).

Analogously to the negative and positive factors included in job stress research (e.g., (Salanova et al., 2012b; Karasek & Theorell, 1990; Schaufeli & Bakker, 2004)), a relatively recent movement has shown that burnout and engagement could be determined not only by the traditional job demands and job resources but also by the presence of obstacles (e.g., unmotivated students) and facilitators (e.g., management of indiscipline) (Llorens et al., 2005; Salanova, Cifre, Grau, Llorens, & Martínez, 2005a). While job demands and job resources refer to physical, psychological, social or organizational aspects of the job (Demerouti et al., 2001), obstacles and facilitators are of a more organizational nature, are more specific to each situation, and are related to performance (Brown & Mitchel, 1993; Carayon, Gurses, Hundt, Ayoub, & Alvarado, 2005). Specifically, obstacles are defined as the tangible organizational characteristics of the situation that have the capacity to impede job performance and restrict productivity. In contrast, facilitators are defined as those aspects of the situation that can promote performance or one's ability to perform one's job optimally. More specifically, facilitators are strategies directed toward managing obstacles in order to mitigate the extent to which problems may interfere with performance (Schneider, White, & Paul, 1998).

There is empirical evidence to show that obstacles and facilitators play a negative and positive key role in psychological well-being, respectively (Brown & Mitchel, 1993; Salanova, Schaufeli, Martínez, & Bresó, 2010). As regards obstacles, research has provided evidence that teachers are also exposed to specific obstacles and troubles in their workplace (e.g., unmotivated students, problems with parents and other colleagues, damage to the infrastructure of the educational center, wrong management of technological resources), which could potentially increase their levels of strain and unwell-being in terms of burnout (Llorens et al., 2005; García, Llorens, Cifre, & Salanova, 2006). Secondly, different scholars conducting research on teachers have shown that the perceptions of facilitators (e.g., technical facilitators, classroom management, and management of indiscipline) positively affect well-being. For example, Salanova et al. (Salanova et al., 2005a) used Structural Equation Modeling on a sample of 142 university lecturers and 872 university students to show that the perception of facilitators in an educational setting decreases burnout and increases engagement through the impact of perceived competence. Despite the fact that past research has confirmed the existence of links between obstacles/facilitators and burnout/engagement, it is also important to uncover the psychological mechanism underlying these relationships over time. More longitudinal research is therefore required to investigate these dynamic, reciprocal relationships among obstacles/facilitators, and burnout/engagement over time.

Another step in the development of burnout (and what is theoretically its opposite, i.e., engagement) has been the inclusion of personal resources in explaining the process of their development. Based on the *Social Cognitive Theory*, one of the pivotal personal resources in stress and health processes is self-efficacy, defined as "*beliefs in one's capabilities to organize and execute courses of action required to produce given attainments*" ((Bandura, 1997), p. 3). Research has shown that efficacy beliefs play a pivotal role in coping with stress and in enhancing psychological well-being (e.g., (Salanova et al., 2002; Llorens et al., 2007; Bandura, 1997; Bandura, 2001)).

Different scholars, using cross-sectional designs, have shown that high levels of specific self-efficacy at work (Cherniss, 1993) relates to burnout, and work engagement (e.g., (Salanova et al., 2012a; Salanova, Schaufeli, Llorens, Peiró, & Grau, 2000; Salanova, Martínez, & Llorens, 2012c)). For example, in a study involving two samples of teachers, Schwarzer and Hallum (Schwarzer & Hallum, 2008) demonstrated that self-efficacy protects them from the experience of job strain and reduces the probability of experiencing burnout. According to Bandura (Bandura, 2001), people's beliefs in their efficacy could develop from four major sources of influence, which vary in strength and importance: mastery experiences, vicarious experiences, social persuasion, and somatic/affective states. In this study, we focus on the last of these sources of efficacy beliefs: affective states (burnout and engagement) as antecedents of work self-efficacy.

Previous research conducted using longitudinal studies seems to show that self-efficacy may not only precede but can also follow affective states by reciprocal relationships (Llorens et al., 2007). Specifically in teachers (Salanova et al., 2011), found a gain cycle of efficacy beliefs, positive affect, and activity engagement. That is, more self-efficacious teachers experienced more positive emotions (especially more enthusiasm) and, consequently, more work engagement. Furthermore, this engagement also led to more self-efficacy over time. Other studies also found that the presence of teaching facilitators (i.e., good social relationships with colleagues and students, adequacy of technology, training) positively relates to work engagement, which in turn predicts high future levels of teacher self-efficacy (Salanova et al., 2005a; García et al., 2006). Despite the relevance of these previous results, there is a lack of longitudinal studies in the teaching context where not only facilitators and engagement but also obstacles and burnout are related to self-efficacy.

The current study is innovative in that we show how organizational factors (obstacles and facilitators), negative and positive affect (burnout and engagement), and personal resources (self-efficacy) are related across time. Moreover, we investigate for the very first time how obstacles/burnout, facilitators/engagement, and self-efficacy are dynamically and reciprocally related to each other, thus creating loss and gain cycles, respectively. To do so, we need to understand the sequences of the psychological experiences that explain the relationships rather than just isolated episodes. In order to study the dynamic interplay of obstacles/facilitators, burnout/engagement, and self-efficacy a longitudinal research design is necessary to be able to differentiate between cause and effect. Such studies, particularly those that combine causal and reversed effects into one reciprocal causation model, are relatively

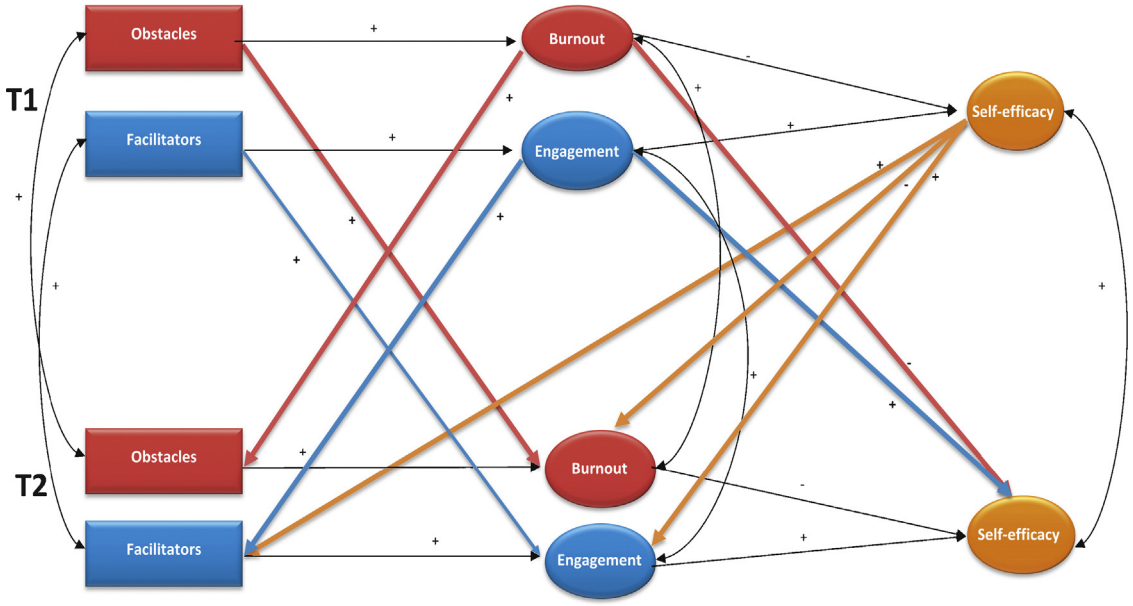

Fig. 1. Theoretical model.

scarce, especially when obstacles and facilitators are considered. According to Mathieu and Taylor (Mathieu & Taylor, 2006), there is a need for theory-grounded longitudinal field studies that assess variables over time using proper sequences and intervals that enhance confidence in (reciprocal) causal relationships. The current study seeks to fill this void.

1. The present study

Taking previous research as its starting point, the objective of the present study is to examine, for the first time, the loss and gain cycle and reciprocal (causal and reversed) relationships concerning obstacles/facilitators, burnout/engagement, and self-efficacy over time in a two-wave follow-up study among 274 secondary-school teachers. We expect (see Fig. 1):

Hypothesis 1. Obstacles at T1 have a positive relationship with burnout at T2. Furthermore, burnout at T1 has a negative relationship with work self-efficacy at T2 (causal).

Hypothesis 2. Work self-efficacy at T1 has a negative relationship with burnout and obstacles at T2. Furthermore, burnout at T1 has a negative relationship with obstacles at T2 (reversed).

Hypothesis 3. Facilitators at T1 have a positive relationship with engagement at T2. Furthermore, engagement at T1 has a positive relationship with work self-efficacy at T2 (causal).

Hypothesis 4. Work self-efficacy at T1 has a positive relationship with engagement and facilitators at T2. Furthermore, engagement at T1 has a positive relationship with facilitators at T2 (reversed).

2. Method

2.1. Participants and procedure

A follow-up study with two waves (8 months between the two times) was carried out among 274 Spanish secondary teachers from 24 Spanish secondary schools. At the beginning of the academic year, a letter was sent to 50 secondary schools explaining the goal of the research and asking for their collaboration. After obtaining the principals' agreement from each school, self-report and hard copy questionnaires were distributed among 600 secondary teachers from these schools, and were later anonymously sent back to the university by surface mail. Altogether 484 respondents from 34 schools returned the questionnaire (81% response rate). Eight months later, at the end of the academic year, identical questionnaires were distributed among the same schools. The final sample was composed of 274 secondary teachers (57% women, 43% men) from 24 Spanish secondary schools. Thus, 57% of the teachers who participated at Time 1 (T1) also participated at Time 2 (T2). The mean age of the sample was 40 years (SD = 7.01).

In order to test whether the drop-outs differed from the panel group, we compared the T1 background variables of both groups (i.e., age, gender, type of school [private versus public], teaching experience, and organizational tenure) with the main study variables at T1. Results from Multivariate Analyses of Variance analyses showed that there were no significant differences between the two groups regarding the background variables, $F(5, 464) = .42$, $p = .81$, or the study variables, $F(4, 454) = .92$, $p = .50$. We therefore concluded that the panel group does not differ from the drop-outs in terms of background variables or in terms of the study variables.

The sample is accurate for computing SEM analyses. Results show that for a power of .80, df = 79, we need a sample of 161 observations to carry out the SEM (we have 274 observations) (MacCallum, Browne, & Sugawara, 1996).

Finally, from the nesting of the data (274 secondary teachers from 24 Spanish secondary schools) we computed ICCs (intercept-only model using the multilevel methodology) at the organizational level on teachers from these 24 educational centers. The result for the dependent variable was 0.009 for self-efficacy. It can be concluded that there were no extreme differences (variance) between organizations that could be biasing the results (Hox, 2010).

2.2. Variables

Organizational obstacles and facilitators were developed on the basis of a self-constructed inventory attending to the recommendations of Brown and Mitchel (Brown & Mitchel, 1993). For that purpose, we conducted an independent preliminary qualitative study to identify specific obstacles and facilitators for secondary-school teachers. This study was completed by a focus group in

which different secondary school teachers were invited to participate. In the first step each teacher proposes a list of the main obstacles and facilitators in his/her work. In the second step, each teacher has to identify (1) whether they are present or not at work using a dichotomous scoring system: zero (not present) and one (present), and (2) whether the obstacles and facilitators valued as one (present) are important or not in their job, which is done using a Likert-type scale ranging from 0 (*not important at all*) to 6 (*absolutely important*) (see (Gracia, Salanova, Grau, & Cifre, 2013; Grau, Llorens, Burriel, Salanova, & Agut, 2004; Salanova, Martínez, & Lorente, 2005b; Salanova, Schaufeli, Martínez, & Breso, 2009), for the validation of the scales). Based on those results, we drew up an inventory of these two sets of obstacles and facilitators, whereby we used a Specifically, *obstacles* – which refers to the organizational factors of the work context that can diminish performance, and which people should make an additional effort to cope with and have some physical or psychological cost – were measured by 8 items (e.g., '*A negative attitude and excessive indiscipline of the students*'). Facilitators – which refer to those aspects of the work context which solve obstacles and that can reduce physical and/or psychological costs – were measured by 12 items (e.g., '*Easy access to information and relevant materials during the preparation of the lesson*'). Respondents answered using a 7-point Likert-type scale ranging from 0 (*not important at all*) to 6 (*absolutely important*). Cronbach's alpha of each scale is shown in Table 1.

Burnout was assessed by nine items from the Maslach Burnout Inventory-General Survey (MBI-GS; (Schaufeli, Leiter, Maslach, & Jackson, 1996)) validated for Spanish samples (Salanova et al., 2000). Specifically, we tested the core dimensions of burnout: exhaustion (five items; e.g., '*I feel emotionally drained by my job*') and cynicism (four items; e.g., '*I become more cynical about the usefulness of my job*'). Respondents answered using a 7-point Likert-type scale ranging from 0 (*never*) to 6 (*always*). Cronbach's alpha of the scales as measured at T1 and T2 is shown in Table 1.

Work engagement was assessed by 11 items of the Utrecht Work Engagement Scale (UWES; (Schaufeli et al., 2002)) validated for Spanish samples (Salanova et al., 2000). Specifically, we tested the core dimensions of engagement: vigor (six items; e.g., '*In my job I am full of energy*') and dedication (five items; e.g., '*My job inspires me*'). Respondents answered using a 7-point Likert-type scale ranging from 0 (*never*) to 6 (*always*). Cronbach's alpha of the scales as measured at T1 and T2 is shown in Table I.

Work self-efficacy was measured by 10 items from Schwarzer's generalized self-efficacy scale (Schwarzer, 1999). Consistent with Social Cognitive Theory, the scale was slightly adapted for use in a specific domain (i.e., the workplace, which in this case is schools; (Grau, Salanova, & Peiró, 2001)). An example of the items used is '*I will be able to solve difficult problems in my job if I invest the necessary effort*'. Respondents answered using a 7-point Likert-type scale ranging from 0 (*never*) to 6 (*always*). Cronbach's alpha of the scales as measured at T1 and T2 is shown in Table 1.

2.3. Data analyses

First, we calculated descriptive analyses (means, standard deviations), inter-correlations and reliability analyses (Cronbach's alpha) using SPSS 21.0. Second, we computed Harman's single factor test (see (Podsakoff, MacKenzie, & Podsakoff, 2012)) with AMOS 21.0 to test for bias due to common method variance. Third, we implemented SEM using the AMOS 21.0 to test the hypothesized longitudinal model. Obstacles and facilitators were included in the model as observed variables. On the other hand, burnout, engagement, and self-efficacy were included as latent factors, and they were operationalized by the subscales introduced as observed, indicator variables. More particularly, burnout was represented by two indicators (exhaustion and cynicism), engagement was included

Table 1
Means (M), standard deviations (SD), internal consistencies (Cronbach's α), and zero-order correlations ($n = 274$).

Variables	*M*	*SD*	alpha	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
1. Obstacles T1	2.57	1.14	.85	–												
2. Obstacles T2	2.53	1.08	.84	.44***	–											
3. Facilitators T1	4.07	0.68	.73	.17**	.24***	–										
4. Facilitators T2	3.97	0.70	.78	.11	.22***	.60***	–									
5. Exhaustion T1	2.11	1.06	.87	.18**	.16**	–.04	.01	–								
6. Exhaustion T2	2.21	1.18	.90	.14*	.17**	–.02	.04.	.76***	–							
7. Cynicism T1	1.72	1.16	.83	.18**	.14*	–.04	–.02	.52***	.43***	–						
8. Cynicism T2	1.75	1.23	.86	.14*	.17**	–.07	–.06.	.47***	.58***	.68***	–					
9. Vigor T1	4.12	0.93	.83	–.05	–.09	.27***	.24***	–.39***	–.32***	–.37***	–.37***	–				
10. Vigor T2	4.01	0.93	.86	–.03	–.05	.26***	.27***	–.29***	–.32***	–.31***	–.45***	.65***	–			
11. Dedication T1	3.88	1.13	.90	–.13*	–.12*	.21***	.14*	–.35***	–.32***	–.53***	–.48***	.66***	.49***	–		
12. Dedication T2	3.86	1.10	.90	–.08	–.12*	.20**	.21**	–.32***	–.32***	–.46***	–.55***	.58***	.74***	.68***	–	
13. Self-efficacy T1	3.93	0.87	.93	–.17**	–.12*	.15**	.19**	–.36**	–.29***	–.45***	–.35**	.43***	.35***	.48***	.42***	–
14. Self-efficacy T2	4.02	0.82	.95	–.12*	–.15*	.20**	.31***	–.26***	–.28***	–.36***	–.40***	.39***	.47***	.38***	.51***	.65***

Notes: Correlations are significant at $^{*}p < .05$, $^{**}p < .01$, and $^{***}p < .001$.

by two indicators (vigor and dedication), and finally self-efficacy was indicated by two reliable halves of Schwarzer's modified scale (Schwarzer, 1999).

A number of competing structural equation models were fitted to the data in several steps. First, a model without cross-lagged structural paths but with temporal stabilities and synchronous correlations was specified (*Model 1*). The temporal stabilities were specified as relationships between the constructs for each measurement wave. This model estimates the total stability coefficient between measurement waves 1 and 2, without decomposing the variance into constituent paths (direct and indirect effects) (see (Pitss, West, & Tein, 1996)). Second, this stability model was compared with three more complex models: (1) *Model 2*: the causality model, which is identical to Model 1 but also includes cross-lagged structural paths from T1 obstacles/facilitators and T1 burnout/engagement to T2 self-efficacy; (b) *Model 3*: the reversed model, which is identical to Model 1 but also includes cross-lagged structural paths from T1 self-efficacy to T2 burnout/engagement and T2 obstacles/facilitators; (c) *Model 4*: the reciprocal model, which considers all paths of Model 2 and 3, and includes reciprocal relationships between obstacles/facilitators, burnout/engagement and self-efficacy.

For all models, the measurement errors of the same indicators (i.e., subscales) collected at different time points were allowed to covary over time (e.g., a covariance is specified between the measurement error of exhaustion as measured at T1 and the measurement error of this scale as measured at T2). While in cross-sectional data measurement, generally speaking errors should not covary, in longitudinal measurement models the errors of measurement corresponding to the same indicator should covary over time.

Methods of maximum likelihood estimation were used by testing absolute and relative indices of goodness of fit (Marsh, Balla, & Hau, 1996): the χ^2 index, the Root Mean Square Error of Approximation (RMSEA), the Tucker–Lewis Index (TLI), the Comparative Fit Index (CFI), and the Incremental Fit Index (IFI). Values smaller than .08 for RMSEA and greater than .90 for the rest of the indices indicate an acceptable fit. Preliminary analyses showed that the demographics (included as covariates) were not systematically related to the model variables, and did not modify the results of the model testing. Therefore, to facilitate model estimation, the demographics were excluded from all further analyses.

Finally, repeated measures Multiple Analyses of Variance (MANOVA) was conducted to assess whether there were significant differences in the intra-subject dynamics in the variables of the study (obstacles, facilitators, burnout, engagement, self-efficacy) over time. Moreover, different Analyses of Variance (ANOVA) and intra-subject contrasts were performed in order to determine the trends of each variable over time.

3. Results

3.1. Descriptive statistics

In the first step, the means, standard deviations, Cronbach's alpha coefficients, and bivariate correlations (including test–retest correlations) of scales used in the current study at Time 1 and 2 were computed (see Table 1). Results show that all variables had an alpha coefficient higher than .70 at T1 and T2 (Nunnally & Bernstein, 1994). As expected, there were significant interrelations between the variables of the study at the same time as well as over time, with the exception of the non-significant relationship between: (1) T1, T2 obstacles with T1, T2 vigor; (2) T1 obstacles with T2 facilitators and T2 dedication; and (3) T1, T2 facilitators with the T1 and T2 burnout dimensions.

Second, Harman's single factor test (e.g., (Podsakoff et al., 2012)) reveals a poor fit to the data, χ^2 (20) = 183.35, RMSEA = .17, TLI = .66, CFI = .74, IFI = .76 for T1 and χ^2 (20) = 328.90, RMSEA = .24, TLI = .53, CFI = .66, IFI = .67 for T2. It seems that the bias of common method variance does not affect the dataset. Thus, the variance of the variables is a consequence of the psychosocial constructs and is not due to the evaluation method.

3.2. Model testing

Table 2 displays the fit indices for the purpose of model comparison. We will first concentrate on the model comparisons. The causality model (M2) proved to be superior to the stability model (M1), Delta $\chi 2$ (7) = 39.06, $p < .001$. This suggests that the inclusion of cross-lagged paths from obstacles/facilitators and burnout/engagement to self-efficacy is substantial. Additionally, the reversed causality model (M3) fitted the data significantly better than both the causality model (M2), Delta $\chi 2$ (2) = 6.18, $p < .05$, and the stability model (M1), Delta $\chi 2$ (5) = 45.24, $p < .001$. This indicates that the model with the cross-lagged paths from T1 self-efficacy to T2 burnout/engagement and T2 obstacles/facilitators, as well as from T1 burnout/engagement to T2 obstacles/facilitators, showed a better fit to the data than the model that includes causal relationships (M2) as well as only temporal stabilities and synchronous correlations (M1).

The $\chi 2$ difference test regarding the stability model compared to the *reciprocal* model (Model 4; see Table 2) revealed that the addition of reciprocal relationships significantly improved the stability model, Delta $\chi 2$ (16) = 217.01, $p < 0.001$. Moreover, the model with the cross-lagged reciprocal relationships among the variables (M4) resulted in a significantly better fit to the data than the causality model (M2) and the reversed causality model (M3). The results of the $\chi 2$ difference tests for both comparisons (M2 versus M4, and M3 versus M4) are Delta $\chi 2$ (9) = 256.07, $p < .001$, and Delta $\chi 2$ (11) = 262.25, $p < .001$, respectively. This means that the theoretical model including cross-lagged reciprocal relationships (causal and reversed relationships) between obstacles/facilitators, burnout/engagement, and self-efficacy fits the data best.

The specific structural relationships resulting from these models showed that all manifest variables loaded significantly on the intended latent factors ranging from .59 to .98 at both T1 and T2. Furthermore, at both waves of measurement, the loadings of exhaustion and cynicism on the burnout factor were higher than .59, whereas the loadings of vigor and dedication on the engagement factor were higher than .73. Finally, the loadings of the two self-efficacy indicators were higher than .79. The autocorrelations between the two waves were found to be .42 for obstacles, .58 for facilitators, .78 for burnout, .74 for engagement, and .26 for self-efficacy.

In agreement with the causal hypotheses, Hypothesis 1 suggested that obstacles at T1 would have a positive relationship with burnout at T2. Furthermore, burnout at T1 would have a negative relationship with work self-efficacy at T2. Similarly, Hypothesis 3 suggested that facilitators at T1 would have a positive relationship with engagement at T2. Furthermore, engagement at T1 would have a positive relationship with work self-efficacy at T2. The model that includes these causal relationships, the reciprocal model (M4), resulted in significant lagged and positive relationships of T1 obstacles with T2 burnout, $\beta = .11$, $p < .05$, as well as of T1 facilitators with T2 engagement, $\beta = .19$, $p < .01$, and T1 engagement to T2 self-efficacy, $\beta = .82$, $p < 0.001$. Furthermore, a negative cross-relationship from T1 burnout to T2 self-efficacy, $\beta = -.30$, $p < .001$, was also obtained. These findings clearly support our first hypothesis.

Secondly, and in accordance with the reversed hypothesis, Hypothesis 2 stated that work self-efficacy at T1 would have a

Table 2
Structural equation modeling fit indices of the model ($n = 274$).

Model	χ^2	*df*	RMSEA	TLI	CFI	IFI	χ^2 diff	ΔRMSEA	ΔTLI	ΔCFI	ΔIFI
M1. Stability	475.76	95	.12	.81	.84	.84					
M2. Causality	514.82	88	.13	.82	.79	.82	39.06***	.01	.01	.05	.02
Diff. M2 and M1											
M3. Reversed	521.00	90	.13	.83	.81	.83	45.24***				
Diff. M3 and M1							6.18*	.01	.02	.03	.01
Diff. M3 and M2								.00	.01	.02	.01
M4. Reciprocal	258.75	79	.08	.92	.90	.93					
Diff. M4 and M1							217.01***	.04	.11	.06	.09
Diff. M4 and M2							256.07***	.05	.10	.11	.11
Diff. M4 and M3							262.25***	.05	.09	.09	.10

Notes: χ^2 = Chi-square; df = degrees of freedom; RMSEA = Root Mean Square Error of Approximation; TLI = Tucker–Lewis Index; CFI = Comparative Fit Index; IFI = Incremental Fit Index; $^{*}p < .05$, and $^{***}p < .001$.

negative relationship with burnout and obstacles at T2. Furthermore, burnout at T1 would have a negative relationship with obstacles at T2. Similarly, Hypothesis 4 suggested that work self-efficacy at T1 would have a positive relationship with engagement and facilitators at T2. Furthermore, engagement at T1 would have a positive relationship with facilitators at T2. The final reciprocal model (M4) also resulted in significant reversed causal structural relationships. However, the relationship that was found was the following: T1 self-efficacy – T2 facilitators, $\beta = .13$, $p < .05$. These findings reject our Hypothesis 2 and partially support our Hypothesis 4. Thus, the results from Model 4 (including the reciprocal relationships) showed that both causal and reversed causal relationships were simultaneously active. The significant paths of the reciprocal model including the relationships between organizational antecedents (obstacles and facilitators), affective states (burnout and engagement), and self-efficacy are displayed graphically in Fig. 2. The hypothesized predictors at TI explained 14% of the variance in T2 burnout, 25% of the variance in T2 engagement, and 28% of the variance in T2 self-efficacy (of which 8% is explained by burnout and 23% by engagement). Finally, T1 self-efficacy explained 12% of the variance in T2 facilitators.

Furthermore, a repeated measures MANOVA test was conducted to assess whether there were significant differences depending on time in the study variables and if mean values of main variables (obstacles, facilitators, burnout, engagement, and self-efficacy) increase over time. Significant multivariate effects were found for the main effect of time (T1, T2), Wilks's Lambda = .934, $F(7, 267) = 2.71$, $p < .01$, multivariate eta = .014. The follow-up repeated measures ANOVAs indicated that the main effect of time was significantly different for facilitators, $F(1, 273) = 5.99$, $p < .05$; exhaustion, $F(1, 273) = 4.98$, $p < .05$; and self-efficacy, $F(1, 273) = 3.96$, $p < .05$. Intra-subject comparisons revealed a significant linear trend in the three cases, for facilitators, $F(1, 273) = 5.99$, $p < .05$; exhaustion, $F(1, 273) = 4.98$, $p < .05$; and self-efficacy, $F(1, 273) = 3.96$, $p < .05$. Thus, teachers significantly increased their levels of exhaustion (mean at T1 = 2.11; mean at T2 = 2.21) and self-efficacy (mean at T1 = 3.93; mean at T2 = 4.02), but decreased their levels of facilitators over time (mean at T1 = 4.07; mean at T2 = 3.97).

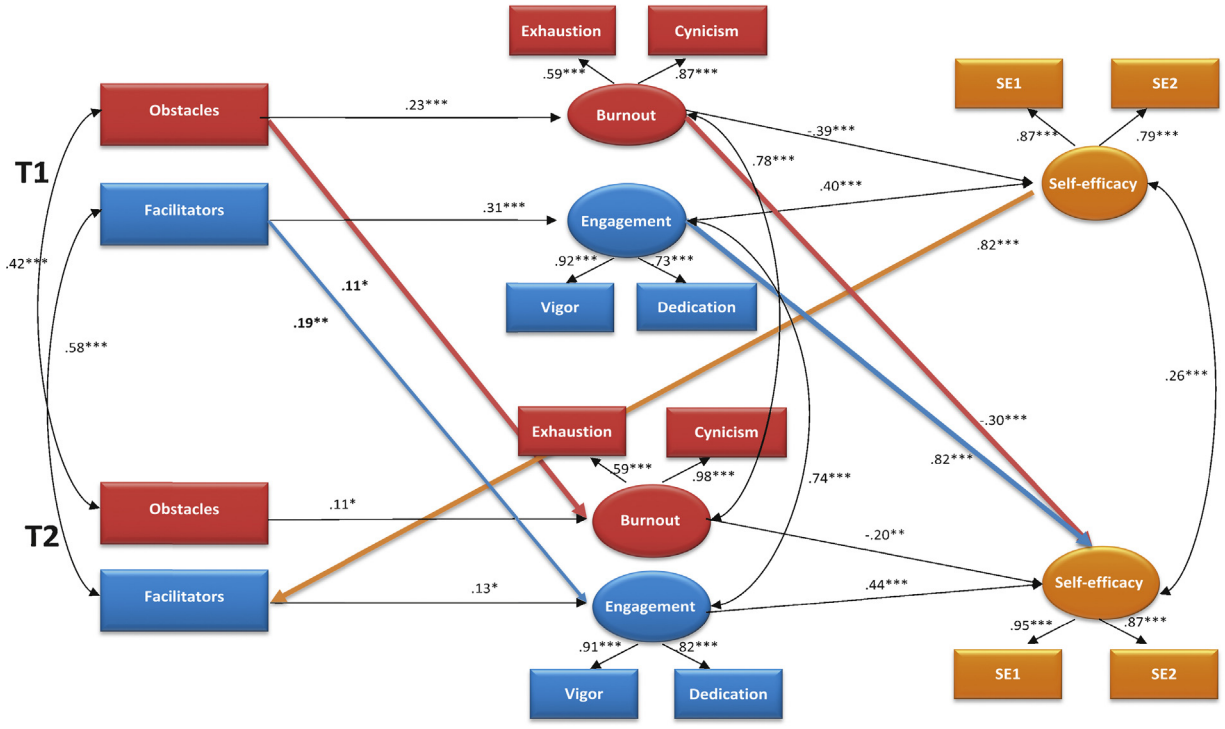

Fig. 2. Structural equation model of obstacles/facilitators, burnout/engagement and teaching self-efficacy ($n = 274$). *Note:* The coefficients standardized are significative at $^{*}p < .05$, $^{**}p < .01$, and $^{***}p < .001$.

4. Discussion

In the current study, the phenomena of burnout and work engagement were investigated in a longitudinal study conducted among secondary-school teachers. More specifically, the objective of the present study was to test the reciprocal (causal and reversed) relationships concerning obstacles/facilitators, burnout/engagement, and self-efficacy over time in a two-wave follow-up study among 274 secondary-school teachers. The main research questions were whether, over time: (1) obstacles at T1 have a positive relationship with burnout at T2, while burnout at T1 has a negative relationship with work self-efficacy at T2 (causal); (2) work self-efficacy at T1 has a negative relationship with burnout and obstacles at T2, while burnout at T1 has a negative relationship with obstacles at T2 (reversed); (3) facilitators at T1 have a positive relationship with engagement at T2, while engagement at T1 has a positive relationship with work self-efficacy at T2 (causal); and (4) work self-efficacy at T1 has a positive relationship with engagement and facilitators at T2, while engagement at T1 has a positive relationship with facilitators at T2 (reversed).

Our findings, using a cross-lagged panel design with 274 secondary-school teachers partially supported the hypotheses. More specifically, the results show that the theoretical model that includes cross-lagged *reciprocal* (causal and reversed) relationships between obstacles/facilitators, burnout/engagement, and work self-efficacy fits the empirical data best. This means that both causal and reversed causal relationships were simultaneously active in the reciprocal relationships between structural (obstacles and facilitators) and affective antecedents (burnout and engagement) and work self-efficacy.

Specifically, results provide evidence for the two different affective processes responsible for self-efficacy in secondary-school teachers. The first process can be described as an energy depletion process where a high number of perceived obstacles would lead to high levels of exhaustion and cynicism, and consequently to a decrease in teachers' self-efficacy. *Obstacles* (e.g., a negative attitude and excessive indiscipline of the students) at T1 had a positive relationship with burnout at T2, and burnout at T1 is negatively related to work self-efficacy at T2. In fact, the presence of obstacles at work led to a causal constant overtaxing and in the long term to the exhaustion of employees' mental and physical resources. This in turn gave rise to depletion of energy, and eventually leads to burnout. Consequently, this negative affective state produces a reduction in self-efficacy at work by causal relationships. Thus, Hypothesis 1 is confirmed.

Simultaneously, the opposite process is also suggested from the data. Thus, the second process is motivational in nature and starts with facilitators. *Facilitators* (e.g., easy access to information and relevant materials during the preparation of the lesson) at T1 had a positive relationship with engagement at T2, and engagement at T1 has a positive relationship with work self-efficacy at T2. That is, teachers who perceived a high number of facilitators felt more vigorous and dedicated at work, which in turn would increase the levels of self-efficacy by causal relationships. Hence, our Hypothesis 3 was also confirmed.

These findings are consistent with previous research on the energy-draining and the motivational processes (Demerouti et al., 2001; Salanova et al., 2012b). Particularly, results offer evidence of the impact of obstacles on the deterioration of health (in our study, burnout) at the workplace and specifically in the teaching context (e.g., (Llorens et al., 2005; García et al., 2006; Lorente, Salanova, Martinez, & Schaufeli, 2008)). Similarly, results support the motivational power of facilitators in the development of work engagement (e.g., (Bakker et al., 2007; Hackman & Oldham, 1980)), specifically in teachers (Salanova et al., 2005a; Salanova et al., 2005b). Furthermore, results also give evidence of and extend the *Social Cognitive Theory*, since the structural (obstacles and facilitators) and affective (burnout and engagement) antecedents of specific self-efficacy at work have been shown in previous research (Bandura, 1997; Bandura, 2001). On this base, self-efficacy at work is reduced over time with the presence of obstacles and burnout, while self-efficacy develops over time when facilitators are available and engagement is experienced.

The second and fourth hypotheses are related to the reversed causation hypothesis. More particularly, Hypothesis 2 posited that work self-efficacy at T1 had a negative reversed relationship with burnout and obstacles at T2, and that burnout at T1 has a negative relationship with obstacles at T2 by reversed relationships. However, none of these relationships were obtained, and thus Hypothesis 2 is not confirmed. In contrast, the reversed relationships were partially obtained in Hypothesis 4, which stated that work self-efficacy at T1 had a positive relationship with engagement and facilitators at T2, and also that engagement at T1 has a positive relationship with facilitators at T2, by reversed causation. More specifically, the only reversed relationship that was found was the positive one from work self-efficacy to facilitators; that is, self-efficacy would predict the perception of facilitators over time. Thus, Hypothesis 4 was partially confirmed. These results may be explained in terms of the greater power of the motivational process which was found in previous studies (Llorens et al., 2007; Llorens et al., 2006), where self-efficacy is mainly related to positive affects and engagement (Salanova et al., 2011; Torrente et al., 2012).

It is interesting to note that additional analyses (repeated measures MANOVAs) showed significant linear trends in the intra-subject contrasts in facilitators, exhaustion, and self-efficacy. Thus, teachers significantly increased their levels of exhaustion and self-efficacy, but decreased their levels of facilitators over time. This unexpected result may be explained by taking into account the specific moment in which the study was completed: at the end of the academic year, which could decrease the perception of facilitators. This reasoning makes more sense bearing in mind that their levels of exhaustion also increase over time.

Consequently, the results partially confirmed our hypotheses. These findings are consistent with previous research on COR theory (Hobfoll, 2001), showing that people seek to obtain, retain, and protect resources in order to avoid stress and be psychologically healthy (in our case, facilitators, work engagement, and self-efficacy). The COR model predicts that when such investments in resources do provide a good return, and consequently goals are achieved, people experience this as a gain that increases the resource pool, and makes it more likely that more resources will subsequently be acquired. Accordingly, teachers who gain resources are more likely to gain more resources in the near future, thereby generating a positive "gain spiral" of resources found in previous empirical studies (e.g., (Llorens et al., 2007; Salanova et al., 2005a; Salanova et al., 2005b)). In addition, this study also agrees again with predictions from Social Cognitive Theory, which assumes that self-efficacy enhances the perception of a more positive environment at work and well-being (Bandura, 1997). In this sense, we found that self-efficacy is a powerful personal resource to build future positive perceptions of work settings, which in turn will facilitate the experience of well-being in terms of engagement in our study. That is, feeling efficacious predicts the perception of more and better facilitators at work, which in turn increase engagement and this will enhance more self-efficacy, i.e., a positive spiral of facilitators, engagement, and self-efficacy is obtained.

To sum up, our results provide evidence for causal relationships among obstacles/burnout and lack of self-efficacy as well as among facilitators/engagement/self-efficacy. Furthermore, there is partial evidence for reversed relationships between self-efficacy and facilitators, which in turn is positively related to engagement and self-efficacy over time in secondary-school teachers. These

results are somehow partially supporting the predicted upward spiral in which positive resources are building more resources over time (Hobfoll, 2001; Hobfoll, 1989). Findings from the current study showed that such personal resources (self-efficacy at work) build organizational resources (facilitators) which in turn have a positive impact on positive experiences (work engagement). These interesting results are somehow partially supporting the positive spiral model found in previous studies (Llorens et al., 2007; Salanova et al., 2011). More specifically, our study showed that self-efficacy can be considered a powerful personal resource which facilitates the perception of more organizational facilitators, which in turn generates more positive psychological states (in our study, engagement), which in turn again will increase the levels of self-efficacy over time in secondary teachers. Thus, self-efficacy and facilitators are reciprocally influenced by each other over time.

4.1. Study limitations and future research

Despite the benefits of the study, for example its longitudinal nature, it also presents several limitations. The first is that a convenience sample was used, which might endanger the generalizability of the results. However, data were collected in a real context involving teachers from different secondary schools. Secondly, the data were collected by self-report questionnaires, which might have caused common method bias. Despite this, Harman's single factor test suggests that the common method bias is not very likely. Third, this study is limited to the context of secondary-school teachers. Since the main hypotheses were confirmed regarding reciprocal relationships between structural and affective antecedents of self-efficacy at work, it would be interesting and relevant to examine this phenomenon in other occupational fields. In addition, it would be important to test the upward spiral model using a cross-lagged panel design with at least three waves (by trying to ensure that the measures do not coincide with the end of the academic year), in order to test the long-term effects of the reciprocal relationships among obstacles/facilitators, burnout/engagement, and self-efficacy at work over time in terms of spirals (Lindsley, Brass, & Thomas, 1995). Finally, since the study was conducted on different schools and consequently the data are nested, in future studies we can examine cross-level relationships with enterprise-level variables (obstacles and facilitators aggregated at the organizational level) that could be influencing and promoting burnout, engagement, and self-efficacy at work within teams or within individuals using multilevel analyses (Hox, 2010). To do this, at least 30 measures on level 2 (in our case, 30 secondary schools) need to be considered (Castro, 2002; Hox, 2002).

4.2. Practical implications

At this point, it is important to notice the relevance of both energy-draining and motivational processes to ensure teachers have enough teaching self-efficacy. But above all it can be concluded that it is essential for teachers to have enough organizational resources in terms of facilitators to enhance positive experiences as regards engagement at work, which in turn generates more self-efficacy. At this point, it seems that teaching self-efficacy is a key element for the development of positive cycles (facilitators and engagement). This information has very clear practical implications for intervention in the educational context. According to our results, intervention strategies should be oriented toward helping professors to get into this positive spiral of facilitators, engagement, and self-efficacy at work. In order to optimize the working environment, Human Resources Managers should take into account the relevance of (re)designing jobs in a healthier way. This means intervening at any stage of the process by (1) investing not only in reducing obstacles and burnout, but above all by (2) providing organizational (facilitators) and personal resources (self-efficacy) in order to foster work engagement in schools. Consequently, schools should invest not only in facilitators but also in increasing within their teachers the idea that "they can". Once teachers feel they are on this positive spiral, the process could continue without end.

Conflict of interest

The authors declare that there are no conflicts of interest.

Appendix A. Supplementary data

Supplementary data associated with this article can be found, in the online version, at doi:10.1016/j.burn.2014.02.001.

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